

ENGINEERS AUSTRALIA
Western Australia Division



ENGINEERS
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CEREMONY REPORT

PERTH'S CAUSEWAY BRIDGES



Heritage Recognition Ceremony

Perth, Western Australia, 19 September, 2012

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*Cover Photo – The eastern Causeway bridge viewed from Heirisson Island
(Photo: Don Young)*

1. Introduction

Perth's Causeway Bridges are located close to the Perth CBD and provide an important road connection between the eastern end of the city and the suburb of Victoria Park. The two bridges in series span the Swan River via the mid-river Heirisson Island (see Figure 1). The bridges were awarded an Engineering Heritage Marker in 2012 by *Engineering Heritage Australia*. The dedication ceremony took place on Heirisson Island on Wednesday, September 19, 2012. This date is exactly 60 years after the official opening of the bridges in 1962.



Figure 1. Aerial photograph of Heirisson Island and the Causeway Bridges, showing the site of the dedication ceremony and the location of the interpretation panel. 2012. (Courtesy Google Maps)

2. Ceremony and Distinguished Guests

The dedication ceremony was organized by Main Roads of Western Australia (MRWA). The invitation list included the current senior managers and directors of MRWA; engineers and managers who worked on the bridges, or surviving members of their families; current and former State Government officials; the current mayors of districts related to the bridges (Perth, South Perth and Victoria Park); the Engineers Australia WA Division President and Executive Director; and members of Engineering Heritage Western Australia (EHWA). The full list of invitees is included in Appendix 1. Distinguished guests who were acknowledged and apologies received are listed on the running sheet

(Appendix 2). The Marker was mounted on a temporary stand for the ceremony and later installed at a permanent location on the bridge.

3. Program and Speeches

The master of ceremonies was MRWA Director of Metropolitan Operations, Mr Ray Seman. Speeches were given by the MRWA Managing Director, Mr Menno Henneveld, and EHWA Chair, Prof Mark Bush. The audience was able to view the eastern bridge in the background during the ceremony.

The speech notes are included in Appendix 2.

4. Ceremony Brochure

A ceremony brochure was produced by MRWA in consultation with the Engineering Heritage Marker nomination author Mr Don Young, using material from the nomination document. See Appendix 3.

5. Media Articles

There was no general media release associated with this event. Instead, the MRWA arranged for the *West Australian* to publish on the day of the ceremony a significant special report on the bridges. This article can be viewed in Appendix 4.

A brief report was also published by the WA Division of Engineers Australia in its electronic newsletter, November 2012. See Appendix 4. This article, modified to include a photograph of the installed interpretation panel, was also submitted to the Engineers Australia Magazine in May 2013 (Appendix 4).

6. Costing

Item	Cost	Source of funding
Panel Design	\$528	EHA
Panel manufacture	\$2415	MRWA
Panel delivery	\$110	MRWA
Marker	\$200 approx.	EHA

The costs of the marker and panel installation and the dedication ceremony were met directly by Main Roads WA and are not known.

7. Interpretation Panel and Marker Disc

The interpretation panel design is shown in Appendix 5. The panel is vitreous glass enamel, 1200 mm wide and 600 mm high. It is mounted on a stainless steel frame and has been positioned on the eastern bank of the river, next to a frequented pedestrian and cycle way (Figure 1). The panel is viewed with the eastern bridge in the background (Figure 8). The marker disc is mounted on an adjacent pilaster below the original 1962 dedication plaque (Figure 9), where it is visible to people walking across the bridge. The marker is the standard 300 mm diameter vitreous enamel on steel marker used by EHA.

8. Photographs



Figure 2. MRWA Managing Director, Menno Henneveld, addressing guests at the dedication ceremony (Photo: MRWA)



Figure 3. EHWA Chairman, Mark Bush, addressing the audience (Photo: MRWA)



Figure 4. Engineering Heritage Marker being unveiled by EA WA Division President Barry Tonkin and MRWA Managing Director, Menno Henneveld. (Photo: MRWA)



Figure 5. MRWA Managing Director Menno Henneveld (L) and former MRWA Bridge Engineer Gilbert Marsh. (Photo: MRWA)



Figure 6. Gilbert Marsh (L) and John Leach (son of former MRWA Commissioner) (Photo: MRWA)



Figure 7. From left to right: E W C Godfrey's sons Norm and Arnold, Arnold's son, David (Photo: MRWA)



Figure 8. The Interpretation Panel installed near the eastern bridge. The Engineering Heritage Marker is on the pedestrian side of the pilaster on the right of the photograph. (Photo: MRWA)



Figure 9. The Engineering Heritage Marker in place beneath an original opening ceremony plaque. (Photo: MRWA)

APPENDIX 1 – List of Invitees

Mr	Menno	Henneveld	Managing Director of Main Roads
Mr	Des	Snook	Executive Director Road Network Services
Mr	Leo	Coci	Executive Director Infrastructure Delivery Directorate
Mr	Ray	Seman	Director Metropolitan Operations
Mr	Doug	Morgan	Executive Director Planning and Technical Services
Ms	Sue	Doherty	Mayor, City of South Perth
Mr	Trevor	Vaughan	Mayor, Town of Victoria Park
Ms	Lisa	Scaffidi	Lord Mayor, City of Perth
Hon	Troy	Buswell	Minister for Transport, MLA
Mr	Reece	Waldock	Director General Transport
Dr	Ken	Michael	Former Commissioner of Main Roads and past Governor
Mr	Albert	Tognolini	Former Commissioner of Main Roads
Mr	Greg	Martin	Former Commissioner of Main Roads
Mr	Mike	Wallwork	
Mr	Tom	Pedersen	
Mr	Harold	Clough	
Mr	Gilbert	Marsh	Former Commissioner of Main Roads
Mr	Barry	Tonkin	President, Engineers Australia WA Division
Ms	Leanne	Hardwicke	Executive Director, Engineers Australia WA Division
Prof	Mark	Bush	Chairman Engineering Heritage WA
Mr	Don	Young	Engineering Heritage WA
Mr	Mike	Taylor	Engineering Heritage WA
Dr	Richard	Hartley	Engineering Heritage WA
Mr	Ian	Maitland	Engineering Heritage WA
Mr	Bruce	James	Engineering Heritage WA
Mr	Jim	Paton	Engineering Heritage WA
Mr	Robert	Morrison	Engineering Heritage WA
Mr	Lloyd	Margetts	Engineering Heritage WA
Mr	Doug	Ayre	Engineering Heritage WA
Mr	Bill	Larke	Engineering Heritage WA
Mr	Arnold	Godfrey	Son of Mr E W C Godfrey
Mr	Norman	Godfrey	Son of Mr E W C Godfrey
Mr	John	Leach	Son of Mr J D Leach
Mr	William	McLarty	Son of Sir Ross McLarty
Prof	Lesley	Parker-Reynolds	Daughter of Mr C S Paterson, Perth City Engineer 1952
Mr	Graeme	Reynolds	Son-in law of Mr C S Paterson, Perth City Engineer 1952
Mr	Ian	Parker	Grandson of Mr C S Paterson, Perth City Engineer 1952
Mr	David	Parker	Grandson of Mr C S Paterson, Perth City Engineer 1953

APPENDIX 2 – Speech Notes

Running Order and Speech Notes prepared for Mr Menno Henneveld

60th Anniversary and Engineering Heritage Recognition of the Perth Causeway Bridges

*Commemoration Ceremony
Wednesday 19th September 2012*

*Menno Henneveld
Managing Director Main Roads Speech Points*

Welcome dignitaries

Apologies: Hon. Minister for Transport, Troy Buswell MLA, Director General Transport, Reece Waldock and Lord Mayor of Perth, Lisa Scaffidi, Mr William McLarty, son of the late Sir Ross McLarty

<i>Menno Henneveld</i>	<i>Managing Director of Main Roads</i>
<i>Sue Doherty</i>	<i>Mayor of South Perth</i>
<i>Trevor Vaughan</i>	<i>Mayor Town of Victoria Park</i>
<i>Dr Ken Michael</i>	<i>Past Governor of Western Australia & former Commissioner of Main Roads</i>
<i>Barry Tonkin</i>	<i>President, Engineers Australia WA Division</i>
<i>Leanne Hardwicke</i>	<i>Executive Director, Engineers Australia WA Division</i>
<i>Professor Mark Bush</i>	<i>Chairman Engineering Heritage WA</i>
<i>John Leach</i>	<i>Son of former Main Roads Commissioner Digby Leach</i>
<i>Distinguished guests</i>	
<i>Ladies and gentleman</i>	

➤ *Ray Seman as MC to introduce Mr Henneveld*

- *Thank you Ray.*
- *Firstly I would like to acknowledge the presence of our distinguished guests, including:*
 - ✓ *Refer table above*

- *I would like to say a warm welcome to all our guests and how pleased we are that you could make it today to participate in the celebration which combines the 60th Anniversary and Engineering Heritage Recognition of the Perth Causeway Bridges.*
- *I'd like to start by recognising the two most influential people who were involved with the construction of the Causeway Bridges – past Main Roads engineers, Ernie Godfrey and Gilbert Marsh.*
- *We are lucky enough to have here today with us Gilbert Marsh and Arnold and Norman Godfrey - Arnold and Norman are the sons of Ernie Godfrey.*
- *For those who don't know, Ernie was one of Main Roads most important bridge engineers who submitted the original proposal to the then Commissioner (J.W. Young) to build two new bridges, which we now proudly call the Perth "Causeway" Bridges.*
- *Gilbert as a young engineer worked alongside Ernie on the construction of the bridges. Together they headed a design team adopting new innovations that would be the envy of any road authority in Australia.*
- *Most of you may already be aware that the Perth Causeway Bridges were officially opened to traffic by the Hon. Ross McLarty MLA on the 19th September back in 1952.*
- *The construction of the Causeway Bridges set a precedent as they were the first modern bridges built in Perth after World War 2*
- *The bridges in the new Causeway were the first in Western Australia to utilise composite steel and concrete deck construction, paving the way for a series of future innovative and economical bridges built from the 1950's through to the 1990's.*
- *To give you an idea of the large scale construction of the project here are just a few interesting statistics about the construction of the Causeway Bridges;*
 - *Perth's Causeway cost \$1,752,000 pounds*
 - *49 thousand feet of piles had been driven for the bridge foundations;*
 - *9500 cubic yards of concrete had been used;*
 - *500 tons of reinforcing steel had been used.*

- *In closing I would like to congratulate Engineering Heritage WA on their recent successful nomination to have the Perth Causeway Bridges recognised for a Heritage Recognition award.*

Speech by Professor Mark Bush, Chair EHWA

Ladies and Gentlemen.

It is a pleasure to be able to join you here today to help celebrate the 60th anniversary of the opening of the Causeway Bridges, and to mark the occasion with the award of Heritage recognition by Engineering Heritage Australia, or EHA. EHA is a national committee of Engineers Australia, which has corresponding groups in each state or division, including one here known as Engineering Heritage Western Australia, which is the group that nominated this project for heritage recognition.

The EHA Heritage Recognition Program is now in its 28th Year, having commenced in 1984. Since that time, around 160 sites and projects have been recognised across the nation. The aim of the Program is to provide credit where it is due to people and objects that have improved the lives or wellbeing of Australians. The program helps to increase the public's understanding of engineering and engineers through appreciation of their outstanding achievements.

Engineering Heritage items are those that have been designed, constructed and operated by engineers or engineering technologists that are significant for historic, aesthetic, scientific or social reasons.

The sites recognised to date are located in every State and Territory and cover virtually all aspects of our engineering heritage including:

- *Bridges, roads and railways*
- *Dams and Power Stations*
- *Pipelines & Pumping Stations*
- *Industrial Plants*
- *Ports and Harbour Works*
- *and many other categories of engineering achievement*

By way of example, early this year EHWA conducted a ceremony to award heritage recognition to construction in the 1960s of the Standard Gauge Rail segment between

Kalgoorlie and Perth, which completed the single gauge connection between the east and west coasts. A few months ago we conducted a ceremony in Carnarvon to recognise the role of the NASA space tracking station, and its staff, in supporting the NASA Gemini and Apollo missions of the 1960s and early 1970s. I might add that that site was afforded EHAs first International heritage marker, signifying the international importance of the station, the first such award anywhere in Australia.

Today we are recognising the significant role that the Causeway Bridges played in the development of Perth, and if we are lucky we just might squeeze in another ceremony later in the year to recognise another significant project in Perth's history, but I can't you what that is right now, as the nomination is currently being considered by the national judges. If that one comes off, and we have no reason to expect that it will not, then WA will have conducted 4 ceremonies this year, which is half number of recognition ceremonies that the national body, EHA, sets as an annual target for the entire nation. So WA is leading the way this year, as it does on so many ways. This is a credit to the hard work and dedication of my fellow members of the WA committee, who research and write the nominations.

The Causeway Bridges project is an excellent example of the infrastructure that contributes enormously to the development of a city, yet often goes un-noticed by the general public. We hope that this award will help to remedy this situation by drawing attention to the structure, with a heritage marker disc that will be unveiled in a moment, and which will ultimately be mounted on the bridge parapet next to the plaque the commemorates the opening of the bridge 60 years ago. This will be accompanied by an interpretation panel that will tell the story of the bridges and which will be mounted nearby.

We're not unveiling the panel today, because it does not exist yet, but with the assistance of MRWA it will be designed, manufactured and erected in the coming months. But if you can't wait and you want to see what the panel will look like, then if you happen to be heading across the narrows bridge on foot or bike, then you can see a similar panel mounted in the grassed area on the Perth side of the bridge. If you're driving across the bridge, then I do not recommend stopping on the freeway to take a look.

The aim of Engineering Heritage Australia is to continue to play our part in keeping the history and recognition of these engineering achievements alive and in public view; and the ceremony this morning is an integral part of that process.

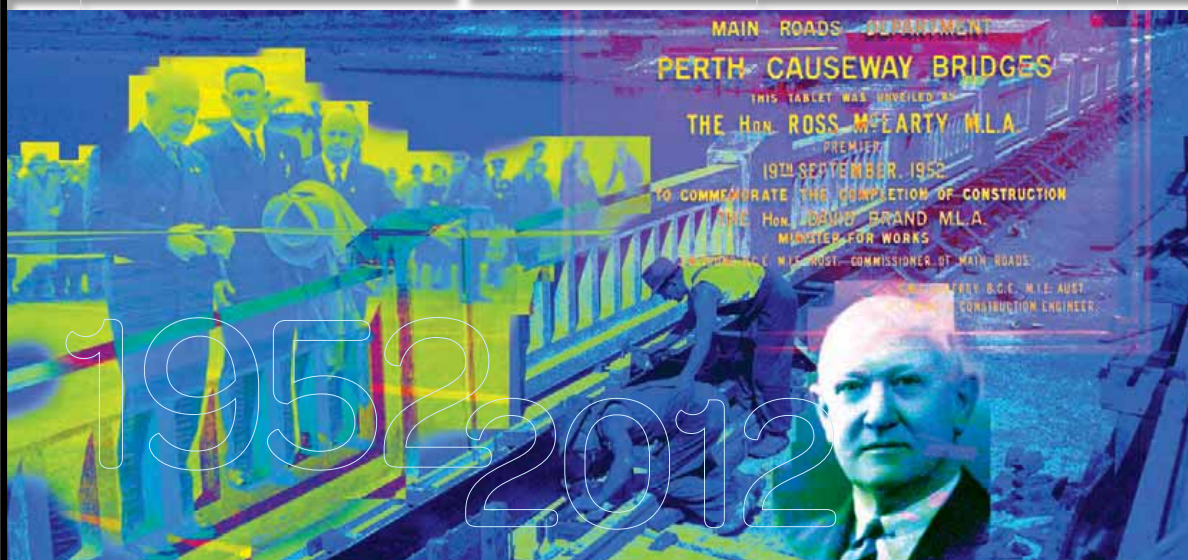
I would like to conclude by congratulating Main Roads WA on the occasion of this award, presented on the 60th anniversary of the opening of the Bridge, to the day. I would also like to thank Menno and the staff of MR for their support of the nomination, allowing us to participate in this celebration and the assistance with the interpretation panel.

Lastly I want to thank Don Young, who singlehandedly prepared the nomination in a very short time and played a major role in organising this ceremony. I acknowledge his hard work and dedication. I must also thank the staff of WA Division Office of Engineers Australia, who always provide enormous support for the activities of EHWA and make these outcomes possible.

Thank you.

APPENDIX 3 – Ceremony Brochure

Celebrating the 60th Anniversary and Engineering Heritage Recognition of The Perth Causeway Bridges



On 19 September 1952 following a colourful history spanning more than a century Perth's modern concrete and steel Causeway bridges were officially opened to traffic by the Premier Ross Mc Larty.

Recently Engineering Heritage Western Australia advised that its nomination of Perth's Causeway bridges for Engineering Heritage Recognition had been successful.





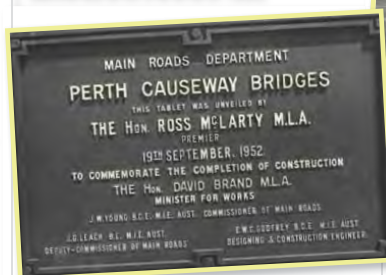
Planning, Design and Construction of the 1952 Bridges

In September 1944, Main Roads WA Bridge Engineer E. W.C. (Ernie) Godfrey (who had been appointed in 1928), submitted a proposal to Commissioner J.W. Young to build two new bridges upstream of the existing ones with a deck 19 metres (62 feet) wide, allowing for one tram lane, two vehicle lanes in each direction, a 2.4m (8 feet) pedestrian footway on the downstream side and a narrow 0.7m (2.25 feet) footway on the upstream side. The combined length of the bridges was to be 341m (1119 feet). Timber piles were to be used and the deck was to be of composite steel and concrete construction. This method of construction had been pioneered in Australia in the 1930s by Mr Alan Knight, Chief Engineer of the Public Works Department of Tasmania. It involved tying steel support girders to the concrete deck with steel stirrups welded to the top flanges of the girders. In order to have sufficiently high clearances over river channels at high tide, the bridges were to have graded approaches and the roadway surfaces follow vertical curves. Although the design concept as detailed above was adopted in 1944, with minor changes, wartime shortages of money, materials and manpower delayed commencement of construction until May 1947. Postwar shortages of materials continued to delay the project.

Vital supplies of cement were double ordered to try and ensure timely deliveries. As well as the local supplier, Swan Cement, supplies of cement came from England, Sweden, Poland, and Japan.

The construction workforce consisted mainly of Main Roads employees, supervised by Main Roads engineers.

A steam powered floating crane was used to lift the superstructure 1.22m (4 feet) deep plate girders into position. The girders were fabricated at the Welshpool factory of Forwood Downs Pty Ltd. It is worth noting that the late delivery of the steel for the girders was a prime cause of the delay in the project completion. Steel ordered from BHP for the girders in August 1948 was not delivered until the end of 1950.



According to J.G. (Gilbert) Marsh, who as a young engineer worked on the Causeway project (and succeeded Ernie Godfrey as Main Roads Bridge Engineer), the Causeway Bridges had a significant difference to the Eastern States composite

concrete bridges in that the deck concrete was "prestressed". This was achieved by securing the ends of the simply supported girders, and jacking up beneath the girders at the third points prior to casting the deck slab. When the concrete had cured sufficiently the jacks were lowered, transferring compression into the concrete. Steel jacking trusses supported the jacks. This procedure prevented shrinkage cracking from developing into more serious cracking under heavy traffic loads.



The bridges were officially opened on September 19, 1952, with considerable fanfare, by the Premier, The Hon Sir Ross McLarty, M.L.A. He presided over a gathering of VIPs including The Hon David Brand, M.L.A., Minister for Works, The Right Hon. J. Totterdell M.L.A., Lord Mayor of Perth, Mr J.W. Young, Commissioner of Main Roads, Mr J. D. Leach, Deputy Commissioner for Main Roads, Mr W. A. Mc. I. Green, Perth Town Clerk, Mr E.W.C. Godfrey, Designer and Construction Engineer and Mr C.S. Paterson, Perth City Engineer.





History of the Causeway site

When Western Australia's first governor Captain James Stirling established the Swan River colony in 1829 he founded two initial townships, the port settlement of Fremantle, on the south bank of the river, and an administrative capital upstream on the north bank of the river, below Mt. Eliza, which he named Perth.

As a consequence of these perhaps hasty decisions the river was for some years the only real 'highway' for the movement of passengers and goods between Fremantle and Perth. The obvious place for a bridge to facilitate road traffic between the two townships was at North Fremantle, but the colony did not have the technical and financial resources to build a bridge there for at least 20 years. Travellers by road from Fremantle to Perth had to follow the south bank of the river to the location where Canning Bridge now stands, use a slow and expensive ferry crossing, then continue overland to a location approximating to the east end of the existing Causeway bridges, then traverse a series of mud flats to firm ground at East Perth.

In February 1831 the colony's Civil Engineer, Henry Reveley, was requested by Governor Stirling to "remove the inconvenience of the Flats" to allow boats to travel upstream.

Various attempts were made to dig canals through the flats but it was 1840 before a successful canal was constructed. As a consequence over the period 1840 to 1843 two wooden bridges and earth embankments were constructed over the canal and mud flats to finally complete the crossing of the Swan River at the Causeway location.

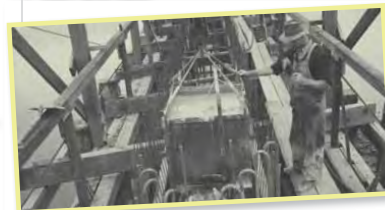


The first Canning bridge was completed in 1849 allowing complete roadway access from Fremantle to Perth along the south bank of the Swan River. A high level bridge over the river at North Fremantle, built by the Royal Engineers using convict labour, was open to traffic in November 1866, permitting road access between the two townships by the more direct route following the north bank of the river.

A second Causeway timber bridge crossing was completed in 1867 after the first bridge crossing was almost destroyed by major flooding in the river in June 1862.



The current Causeway bridges were constructed by the Main Roads Department, Western Australia between 1947 and 1952.



Engineering Heritage Marker

In August 2012 Engineering Heritage Australia advised Engineering Heritage WA that its nomination of Perth's Causeway Bridges met the assessment criteria set down in Engineering Heritage Australia's Heritage Recognition Guidelines and the bridges had been awarded an Engineering Heritage Marker.



Celebrating the 60th Anniversary and Engineering Heritage Recognition of The Perth Causeway Bridges

Bridge Statistics Modern Day Causeway

- Perth's Causeway cost 1,752,000 million pounds
- 49 thousand feet of piles had been driven for the bridge foundations
- 9500 cubic yards of concrete had been used
- 500 tons of reinforcing steel had been used
- Looking back to 1843 there was a toll to cross the then Bridges and Causeway which ranged from one penny for pedestrians to sixpence for certain animals, with soldiers and mail-carriers to cross free of charge.



Written September 2012, extracts supplied from "Perth Causeway Bridges nomination for Engineering Heritage Recognition by Engineering Heritage Western Australia, "Perth Causeway 1830's to 1952" by Lloyd Margetts 2002 and "The Perth Causeway celebrating 50 years 1952 – 2002"

Eminent Persons Associated with The Project



Sir Ross McLarty, KBE, MM, MLA
Premier of Western Australia,
1947 – 1953



Mr J.D. Leach, CBE, B.E. FIEAust
Commissioner of Main Roads WA,
1953 – 1964



Mr J.W. Young, B.C.E. M.I.E.Aust
Commissioner of Main Roads WA, 1941 – 1953
Director of Works, Public Works
Department of WA, 1953 – 1962



Mr E.W.C. Godfrey, B.C.E. M.I.E.Aust
Bridge Engineer, Main Roads WA, 1928 – 1957
Causeway Designer and Construction Engineer



The West Australian, 19th September, 2012



Traffic jam: Motorists queue on opening day to cross the Causeway.



Sixty years ago today: The opening of the bridges. Picture: Main Roads

Big queue to be first over new Causeway in 1952

■ Kent Acott

It was probably Perth's first traffic gridlock — and it happened 60 years ago today.

Drivers of cars, trucks and buses and riders on motorcycles and bikes clamoured to be among the first to cross the new Causeway at the eastern end of the city after it was officially opened by premier Ross McLarty at 4pm on September 19, 1952.

At the front of the queue was the utility driven by 53-year-old Claude Lennox Brabazon, a builder from North Perth.

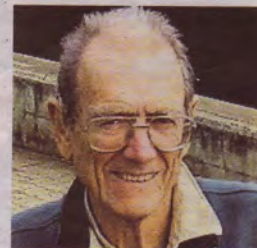
According to *The West Australian's* report, the "keen" Mr Brabazon had queued for 30 minutes waiting for the Causeway to open.

"Immediately the barrier was removed, he roared up his engine and vied with a motorcyclist for first place across the bridge," the report said.

It was not the first time Mr Brabazon's exploits had made headlines. Twelve years earlier, he narrowly escaped death when he crashed a sailplane into Lake Pinjar, north of Wanneroo, and suffered multiple fractures of both legs.

While Mr Brabazon took the "official" honours, the "technical" winner in the race across the Causeway was the car that took the premier to the middle of the bridge where he used golden scissors to cut a black-and-gold ribbon and officially open the concrete and steel bridge.

Sir Ross, who was knighted in 1953, was a Pinjarra farmer and



Last survivor: Gil Marsh

'He roared up his engine and vied for first place across the bridge.'

The West Australian, 1952

World War I veteran. He had been elected to State Parliament as a Nationalist candidate in 1933 and became leader of the newly formed Liberal Party in 1946.

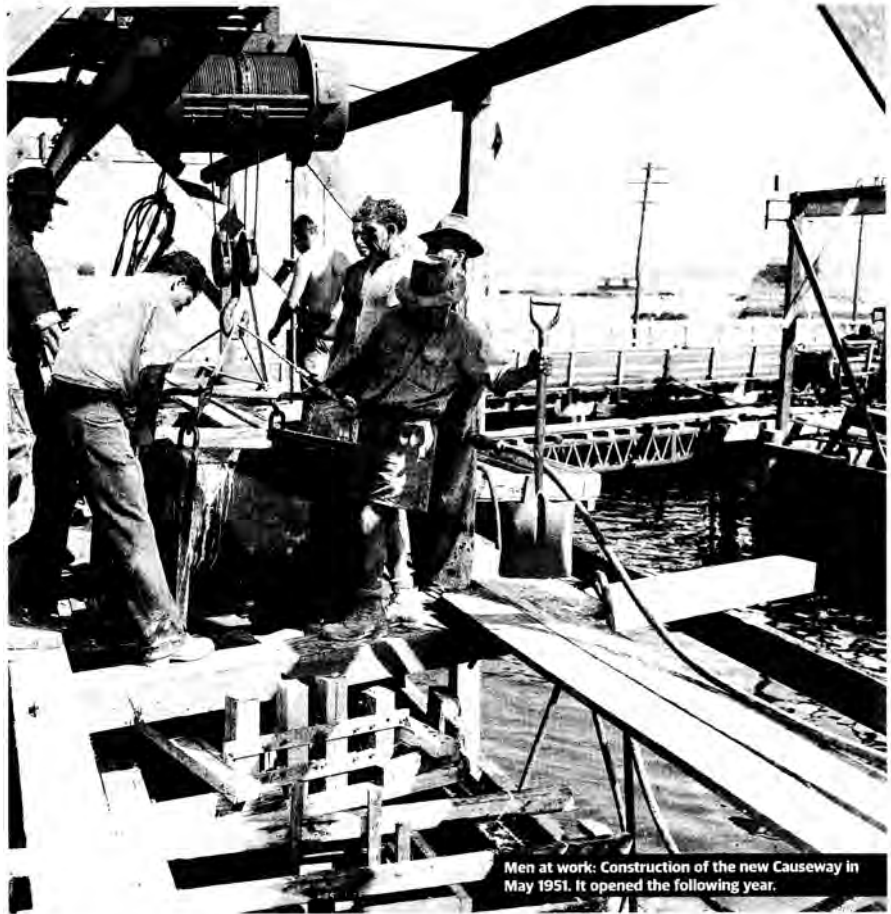
When the Liberal-Country coalition surprisingly won the 1947 election, Sir Ross became premier.

His premiership coincided with rapid postwar expansion in WA, including 1.2 million hectares opened for farming, the Kwinana industrial area established, housing shortages alleviated and improved power supplies.

It also included building the Causeway, a pivotal city link that was essentially two bridges that connected the northern and



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Men at work: Construction of the new Causeway in May 1951. It opened the following year.

southern banks of the Swan River, via Heirrisson Island.

Sir Ross' only surviving son Bill, now 85, said his father had wanted to see progress and, under his premiership, the State had grown very quickly.

"We were very proud of what he achieved," Mr McLarty said. "He was a very popular man and treated everyone as his equal."

"He wanted to make sure West Australians were better off — and I think they were."

The Causeway had a colourful history that spanned more than a century. The first wooden bridges were built between 1840 and 1843 and a toll was charged to cross, ranging from one penny for pedestrians to sixpence for certain animals. Soldiers and mail carriers crossed free.

The bridges were destroyed by flood in 1862 and the rebuild was completed in 1867.

The bridges were widened to take trams and horse-drawn carts.

In September 1944, Main Roads WA bridge engineer Ernie God-

frey proposed two new bridges upstream of the existing ones, to be 19m wide to accommodate a tram-line, two vehicle lanes in both directions and a footpath.

Although the plan was supported, wartime shortages of money, materials and manpower delayed the start of work until May 1947.

Cement came from local supplier Swan Cement and from England, Sweden, Poland and Japan.

Young assistant engineer Gil Marsh was one of 50 workers on the project over the following four years. Now 86, Mr Marsh believes

ONLINE
More historic photographs
at thewest.com.au

he is the only surviving member of the workforce.

Mr Marsh said the construction method had been pioneered in Tasmania in the 1930s. Steel support girders were tied to the concrete deck, with steel stirrups welded to the top flanges of the girders.

"And by prestressing the deck

concrete, we were able to prevent shrinkage cracking from developing into more serious cracking under heavy traffic loads," Mr Marsh said.

"You won't find too many cracks on that bridge. And it will probably be the same for another 60 years."

For these reasons Engineering Australia this week officially recognised the Causeway as a significant piece of WA's engineering heritage.

A ceremony to mark the Causeway's anniversary will be held on Heirrisson Island this morning.

Author: Don Young

Causeway Bridges Receives Engineering Heritage Recognition

On 19 September Engineering Heritage WA joined Main Roads WA in a ceremony to celebrate the award of an Engineering Heritage Marker to Perth's Causeway Bridges.

It was fitting that the ceremony, held on Heirisson Island, occurred on the 60th anniversary of the official opening by Sir Ross McLarty, then Premier of Western Australia.

Designed and constructed by Main Roads, the bridges were the first steel and concrete composite deck structures built in Western Australia.

Among the invited guests were Arnold and Norman Godfrey, sons of E.W.C. (Ernie) Godfrey, Main Roads Bridge Engineer 1928-1957, John Leach, son of J.D. (Digby) Leach, Commissioner of Main Roads 1953-1962, and Gilbert Marsh, who as a young engineer worked in the supervisory team and succeeded Ernie Godfrey as Main Roads Bridge Engineer, holding that position until he retired in 1985.



Image: Main Roads Managing Director, Menno Henneveld (left) and Gilbert Marsh with Engineering Heritage Marker

Article submitted to Engineers Australia magazine, May, 2013

Perth's Causeway Bridges Receive Engineering Heritage Recognition

On 19 September 2012 Engineering Heritage WA joined Main Roads WA in a ceremony to celebrate the award of an Engineering Heritage Marker to Perth's Causeway Bridges. It was fitting that the ceremony, held on Heirisson Island, occurred on the 60th anniversary of the official opening by Sir Ross McLarty, then Premier of Western Australia.

Designed and constructed by Main Roads, the bridges were the first steel and concrete composite deck structures built in Western Australia. The bridges played, and continue to play, a significant role in the development of Perth.

Among the invited guests were Arnold and Norman Godfrey, sons of E.W.C. (Ernie) Godfrey, Main Roads Bridge Engineer 1928-1957, John Leach, son of J.D. (Digby) Leach, Commissioner of Main Roads 1953-1962, and Gilbert Marsh, who as a young engineer worked in the supervisory team and succeeded Ernie Godfrey as Main Roads Bridge Engineer, holding that position until he retired in 1985.

An interpretation panel to accompany the marker disc was installed near the eastern bridge in May 2012.



Main Roads Managing Director, Menno Henneveld (left) and Gilbert Marsh with Engineering Heritage Marker




The Engineering Heritage Interpretation Panel with the eastern Causeway Bridge in the background. The Engineering Heritage Marker is mounted next to the pedestrian walkway on the bridge.

Author: Don Young



ENGINEERS AUSTRALIA

PERTH'S CAUSEWAY BRIDGES - A STORY OF THREE CROSSINGS -



HISTORY OF THE CAUSEWAY SITE

Local indigenous people had been crossing the river on foot for thousands of years before the first recorded European visit. In 1800, the first European to cross the river was Captain James Stirling. He was followed by a large number of black men, and over 100 years later, in 1901, the French expedition, under the command of M. de La Roche, visited Western Australia. Sailors from the Naval Base, visited the river to the Causeway site and named the island at the centre of the area after midshipman Francis Heronson. The island was named Heronson Island, and the bridge was named after him. The bridge was built on the site of the original boats carried across the Perth River, as they became known, before proceeding upstream.



Illustration of the original boats carried across the Perth River, as they became known, before proceeding upstream.


SECOND CAUSEWAY CROSSING 1867

In June 1862 major flooding occurred in the area. The first causeway bridges and embankments were almost destroyed after being submerged under more than two metres of water. The new causeway bridge was built on the site of the original bridge, and was built by convict labour. The original one was rehabilitated, extended, and raised by about one metre. The structure, consisting of three timber bridges, had a combined length of 400 m (1312 feet). The official opening of the newly-rebuilt causeway on 12 November 1867 was a triumph for the colony. The Governor declared the new causeway open with the words "I, John Stirling, Governor do hereby declare the new Causeway open for traffic."

"I, John Stirling, Governor do hereby declare the new Causeway open for traffic."

The proceedings were then disrupted when a young man on horseback raced across the newly opened bridge. After announcing to the crowd:

"I, John Stirling, Governor do hereby declare that I will be the first to cross the Perth Bridge and Causeway."



Chief of the bridge of the second Causeway crossing 1867

EARLY SWAN RIVER BRIDGE CROSSINGS

The decision by the Swan River Colony's first Governor, Captain James Stirling, to locate the townships of Fremantle and Perth on opposite banks of the river immediately created the need for a bridge to facilitate road transport between the two settlements. The obvious place for a bridge was at North Fremantle. In 1829, the Colony did not have the technical and financial resources to build a bridge. However, in 1831, the Governor, Sir James Stirling, decided to build a bridge. He made a track on the north bank of the river to the location where Canning Bridge now stands, made a slow and expensive ferry crossing, continue onward to a location near the east end of the existing Causeway bridge, then traverse a series of mud flats to firm ground at East Perth.


FIRST CAUSEWAY CROSSING 1843

In February 1831 the colony's Civil Engineer, Henry Petherick, was requested by Governor Stirling to "remove the superfluous of the floor" to allow boats to travel upstream. Various attempts were made to dig canals through the first ford but it was not until 1840 that a successful canal was completed. Subsequently, over the period 1840 to 1843 two wooden bridges and earth embankments were built. The first bridge was built by convict labour, and the second by free labour. The third bridge was built by free labour. The road cost was £1,845.10. It helped pay for the project of the original Causeway was a toll road, with charges ranging from 1d (for a person on foot) to 6d (for a horse drawn cart).


THIRD CAUSEWAY CROSSING 1952

The 1867 bridges were modified several times during their life. In 1899 they were widened by the addition of a footpath, widened again and strengthened in 1904 and widened again in 1933. Some of the bridges were replaced with concrete bridges. The bridges were widened and strengthened work was done to bridge the river to provide much wider navigation channels.


In 1944 Main Roads Bridge Engineer FMC, Goffrey submitted a proposal to Commissioner AM Young to build two new bridges upstream of the existing ones with a 19 metre wide deck. The combined length of the two bridges was to be 345 metres. Unlike the previous timber bridges the new areas were of concrete steel and concrete construction. This involved lying the steel support on site such that the bridges were not completed until 1952. As well as the local supplier, Swan Cement, supplies of cement came from England, Sweden, Poland and Japan. The late delivery of cement in August 1948 was not delivered until the end of 1951. The construction workforce consisted mainly of Main Roads employees, supervised by Main Roads engineers.




Sir Robert McLarty
Premier of Western Australia
1947-1953




Mr. Kim Young
Commissioner Main Roads WA
1941-1953




Mr. Dugby Lach
Commissioner Main Roads WA
1953-1964




Mr. Ernie Goffrey
Bridge Engineer Main Roads WA
1929-1957




Mr. J. D. Lamb
Chief of the bridge of the Perth Causeway Bridge




Mr. J. P. Hogg
Chief of the bridge of the Perth Causeway Bridge




Mr. J. C. Goffrey
Chief of the bridge of the Perth Causeway Bridge




Present: The road has been cutting a ribbon at the official opening on 19 September 1952




Present: The road has been cutting a ribbon at the official opening on 19 September 1952




Present: The road has been cutting a ribbon at the official opening on 19 September 1952



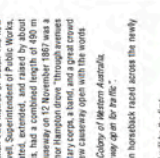
Driving under jobs to support jobs



Driving under jobs to support jobs




Driving under jobs to support jobs




Driving under jobs to support jobs




Driving under jobs to support jobs



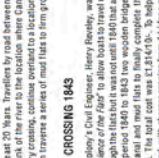
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